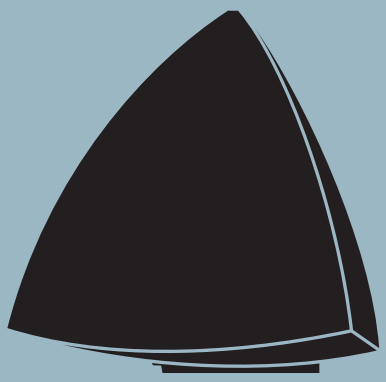
BeoLab 4

Type 6650, 6652

Service Manual
English

German, French, Italian, Spanish, Danish, Dutch and Japanese versions are available in the Retail System



This Service Manual must be returned with the defective parts/back-up suitcase !

BANG & OLUFSEN

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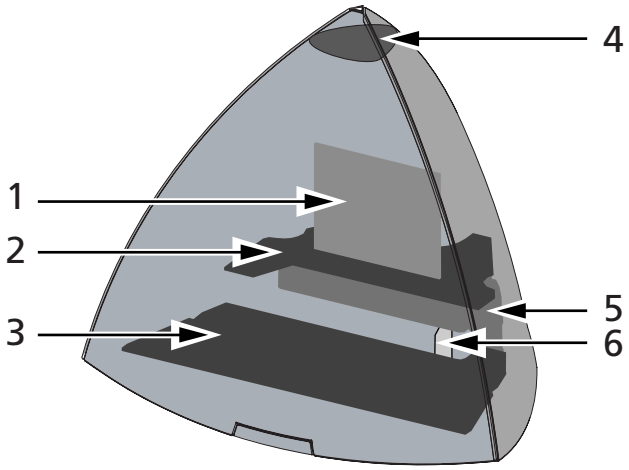
Specification guidelines for service use 6.1

Block diagram 7.1

Wiring diagram 7.2

Available parts 8.1

Survey of modules



PCB1	Amplifier
PCB2	SMPS
PCB3	Filter
PCB4	LED
PCB5	Switch
PCB6	Input

How to service

Front line service

BeoLab 4 is to be serviced in the customer's home when it comes to electrical symptoms or exchange of mechanical parts. In this way you avoid having to make more than one visit and using minimum of time on the case, all for the benefit of the customer.
BeoLab 4 has been split-up into as few service items as possible. Each service friendly item is packed individually, prepared for worldwide transport, and has a separate seven digit spare part number to be found in the Bang & Olufsen Retail System or the Service Manual. The exploded view drawing will show the service spare parts.

Back-up suitcase

A back-up suitcase contains all necessary electrical modules for front-line repair of one loudspeaker. Cabinet parts must be ordered separately in the Retail System or directly from B&O Struer DK.
The replaced modules must be returned for repair at Bang & Olufsen, Module Repair Department. Use the Module Repair form or the form in the Retail Order System, Exchange Module.

Delivery

As there is only one type number for BeoLab 4, the product can be used for all markets with 100 to 240 Vac mains voltage. When you order BeoLab 4 (set of two) this includes two mains cables, two Power Link cables and two boxes with the three front covers in the chosen colour. This means that the delivery will consist of four boxes.
This setup allows our packaging department to pack the specific order for the customer no matter which country it goes to or the colour chosen.

Installation and setting-up

Only the switch for loudspeaker placement and the switch for Left or Right - Line or PC must be set into correct position as described in the User Guide before Power Link/Line signal and AC power wires are connected. If the Power Link is used, the switch is for Left or Right setting. If Line connection is used (via mini-jack plug) the switch is for Line (0 to 1V) or PC-line (0 to 2V) setting. See more details in the User Guide. The automatic switch-off circuit is only active with the switch in Line position, and is not active with the switch in PC-line position.
The LED will indicate on (green) or off (red) only.

Fault Finding

Before troubleshooting is initiated, let the customer demonstrate the fault, if possible. There are four electrical modules in the product, and furthermore two additional modules. One with a LED and one with a mini jack socket. Therefore a faulty module is easy to point out in most cases. The PCB's has been divided into the functionality: Inputs, Amplifier, Power supply and Filter.
No special service programs are available in this product or via the ServiceTool.
If there is a fault in the SMPS (PCB2) or Amplifier (PCB1) the LED is typically off.
Only the tweeter unit is protected by a circuit that measures the resistance in the coil, and will automatically turn down the signal level for the tweeter shortly if it is too high for a period.

Replacement

Replacement of a loudspeaker unit or the amplifier.
Each loudspeaker is individually adjusted from production to secure optimal stereo perspective.
If a defective loudspeaker unit must be replaced, it is easily done without adjustment due to the specifications of the unit.

Mechanics

All cabinet parts as e.g. the socket panel can be changed on-site. All surfaces can be cleaned with a mild detergent.
Internal parts are supplied as service kits, e.g. the loudspeakers, PCB's etc.
A product cover (soft) for service, black, can be ordered for transport of BeoLab 4.

Warnings

ESD



STATIC ELECTRICITY MAY DESTROY THE PRODUCT

When electrical replacements or disassembly is taking place, use an ESD-mat. The internal electronics are very sensitive to static electricity.

Handling

Wear cotton gloves to avoid any fingerprints on the product.

The surfaces on the product are very sensitive, so handling should be done with great care to avoid damage.

Cleaning of the speaker surfaces should only be done with a lint-free cloth which you have dipped in lukewarm water and wrung firmly.

Insulation test

The product must be insulation tested after having been dismantled. Make the test when the set has been reassembled and is ready to be returned to the customer. Flashover must not occur during the test.

Make the insulation test as follows:
Short-circuit the two pins of the mains plug and connect them to one of the terminals of the insulation tester.
Connect the other terminal to ground on the Power Link socket.

NOTE!
To avoid damaging the product it is essential that both terminals of the insulation tester have good contact.

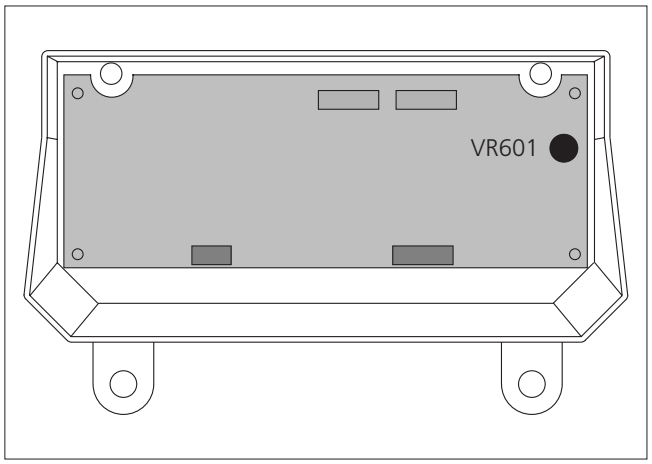
During the test the current must not exceed 5 mA.
Slowly increase the voltage on the insulation tester until a voltage of 2.5 kV (ac) is obtained. Maintain the voltage level for one second, then slowly decrease the voltage to 0 V (ac).

Adjustments

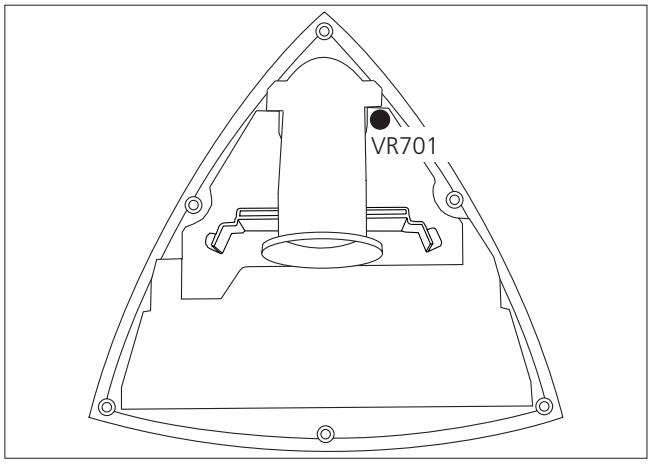
Adjustments after replacing PCB3 or PCB5

Read out the adjustment position of the old potentiometers, VR601 & VR701, and set the new potentiometers to the same position.

PCB3 – VR601



PCB5 – VR701



Repair tips

Hum in loudspeaker when no music is played.
The Power Link cable must be of type MK III or higher.
The ground connection in Power Link cable lower than MK III may be insufficient for optimum sound performance.
The loudspeaker units can be checked by an ohm-meter (tweeter 5.7Ω ±10%; woofer 6.7Ω ±10%).

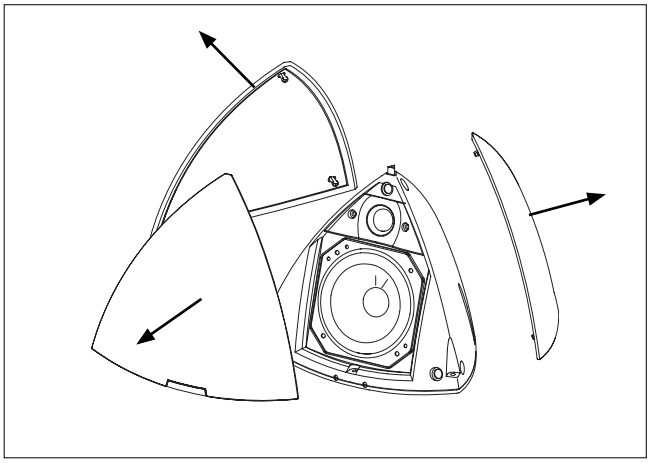


Power Link
MK III

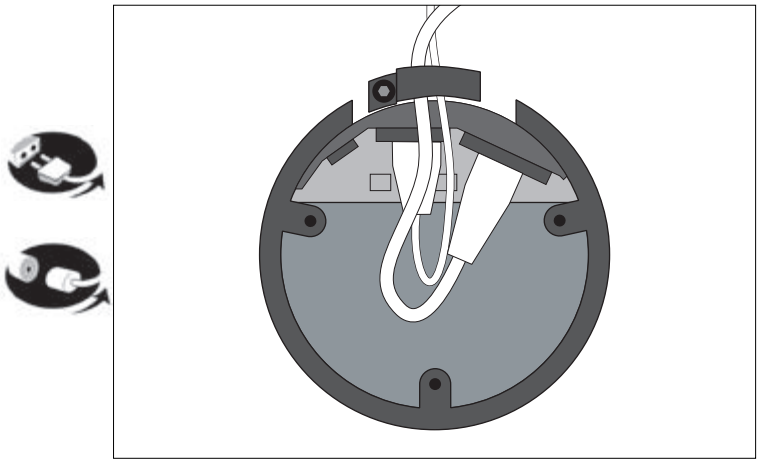


Remove front cover

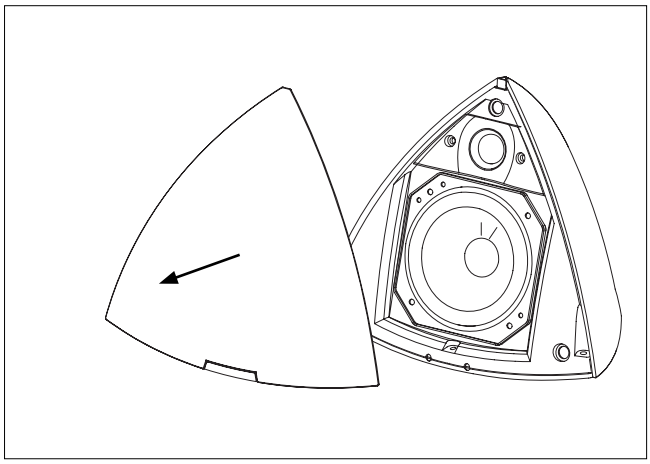
- Pull off front covers



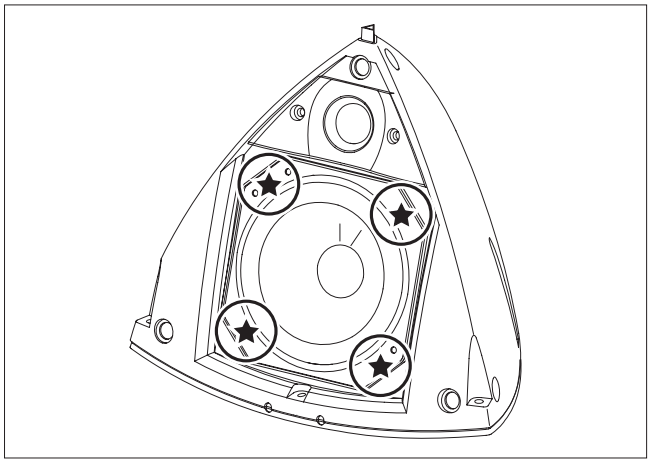
- Remove cables



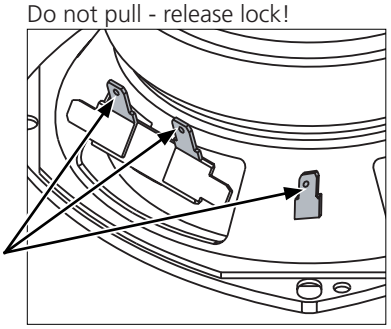
- Pull off front cover

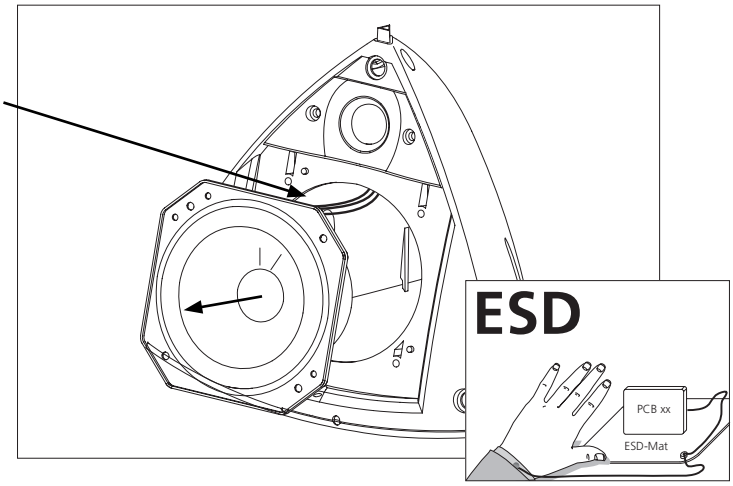


- Remove screws

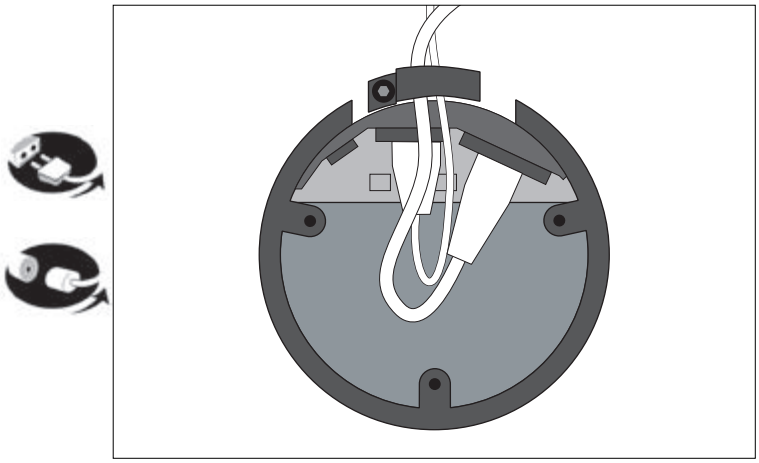


- Remove cables

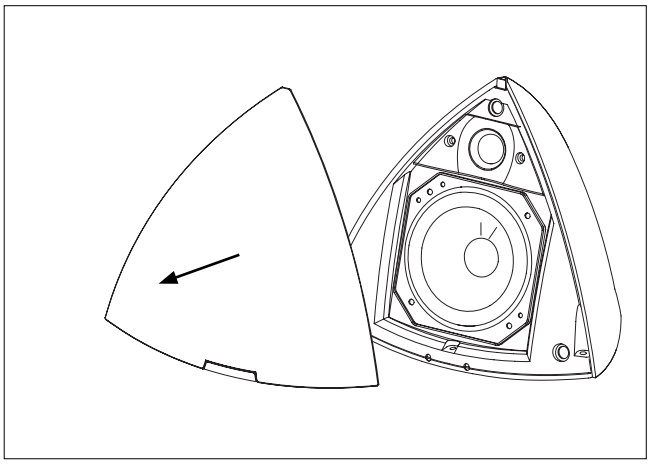




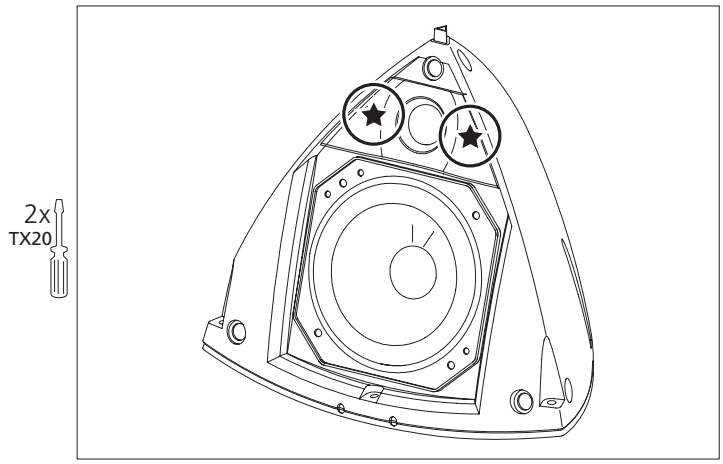
- Remove cables



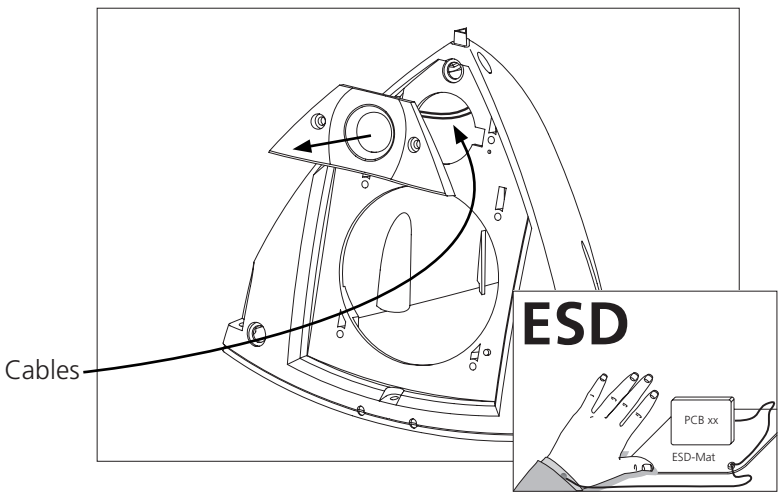
- Pull off front cover



- Remove screws

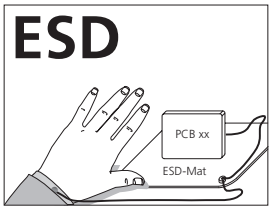


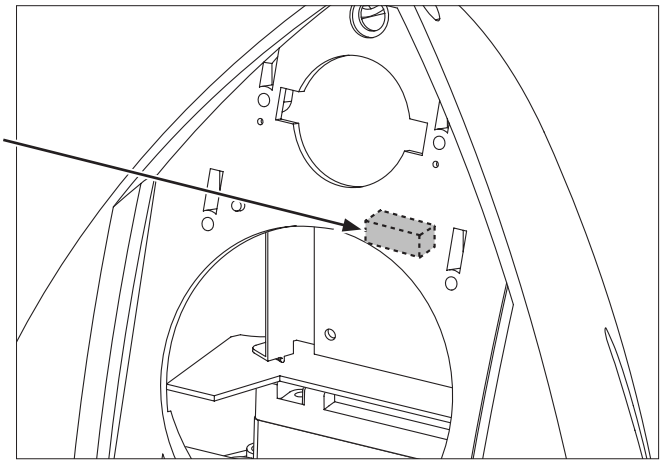
- Remove cables
  Do not pull - release lock!



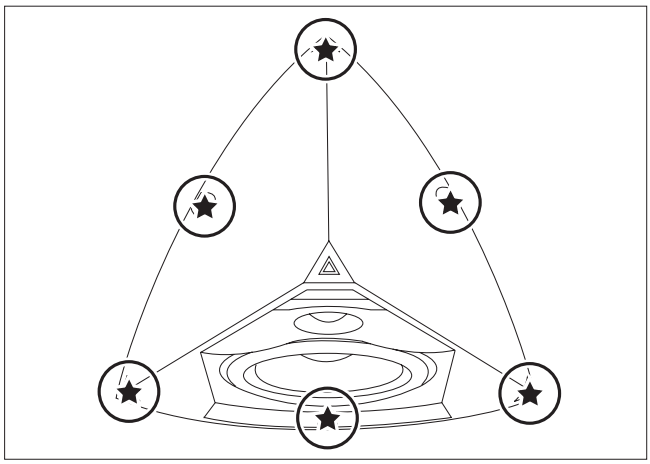
☞ 5.1 Remove front cover
☞ 5.2 Remove woofer
☞ 5.3 Remove tweeter

- Remove plug

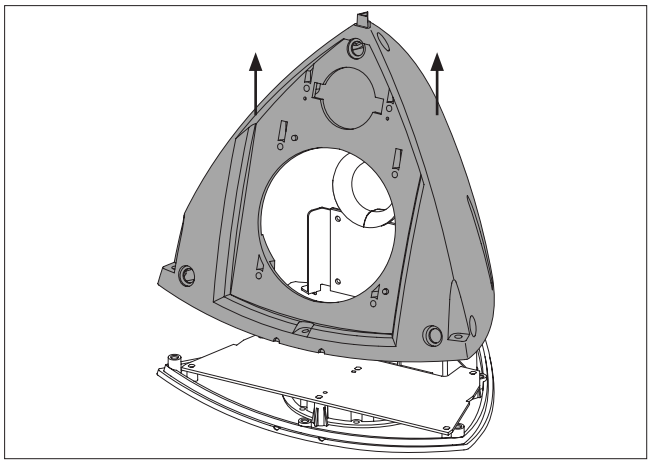




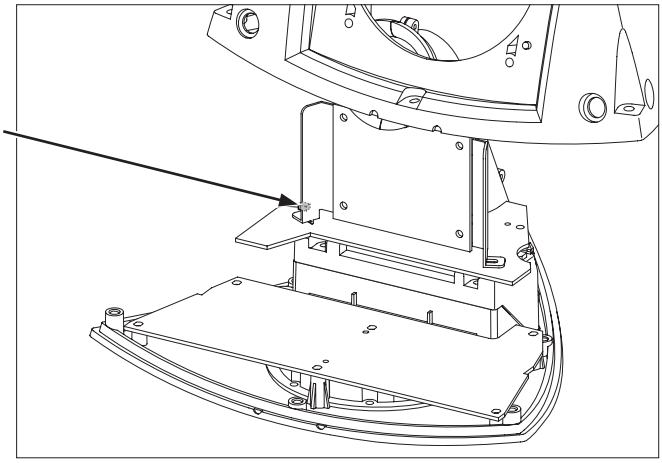
- Remove screws



- Pull off cabinet
  Note that this may require some effort

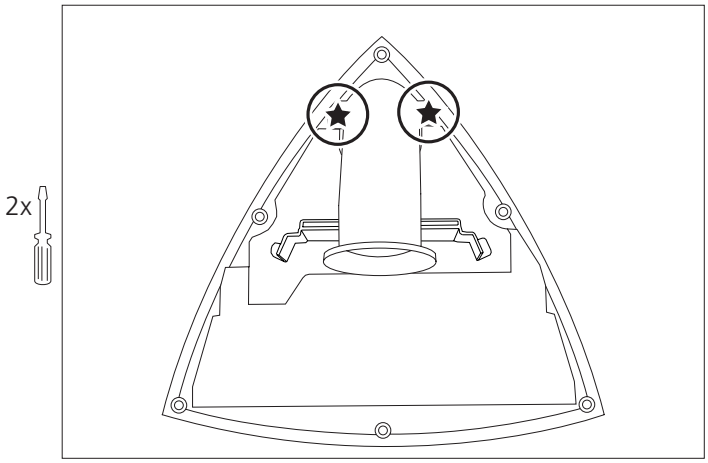


- Remove plug
- Remember to transfer label to new cabinet!

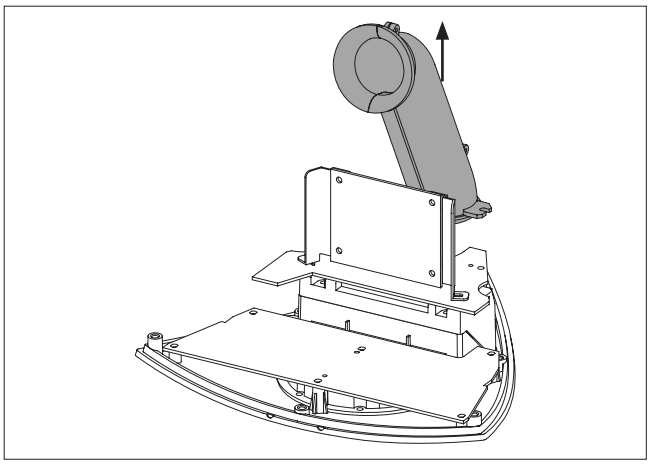


☞ 5.4 Remove cabinet

- Remove screws

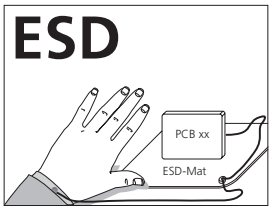


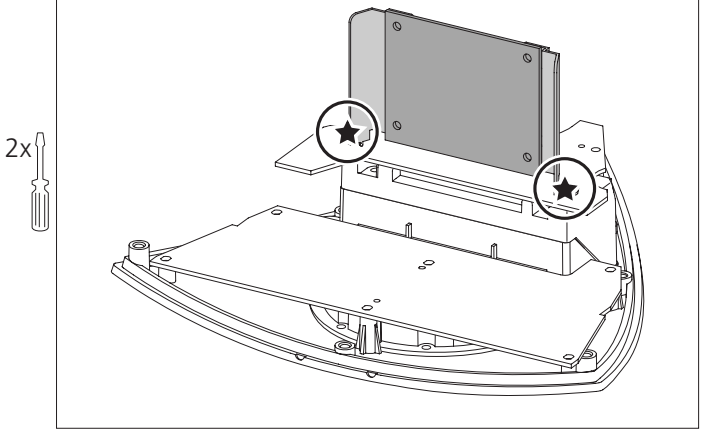
- Lift off port as shown



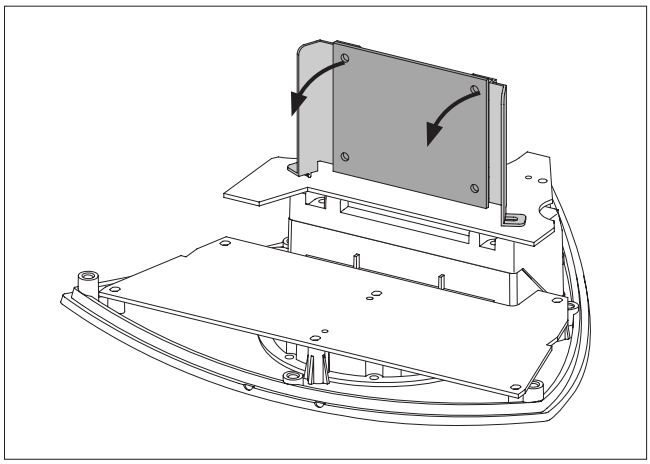
☞ 5.4 Remove cabinet
☞ 5.5 Remove port

- Remove screws

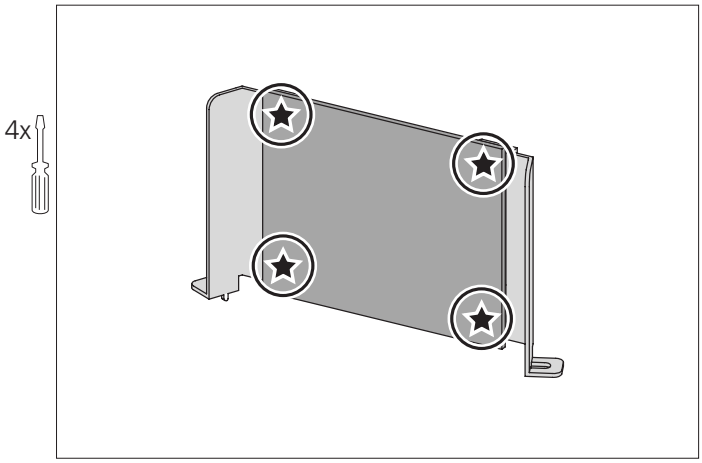




- Gently pull off bracket with PCB1 mounted

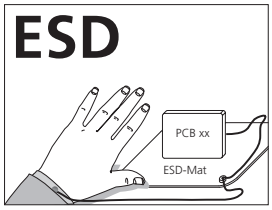


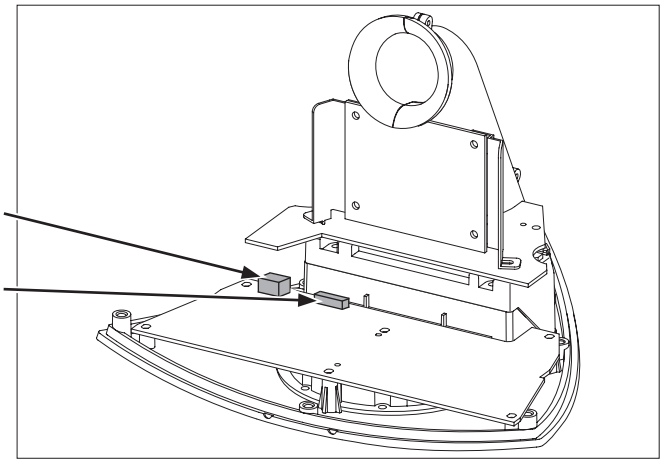
- Remove screws and pull off PCB1



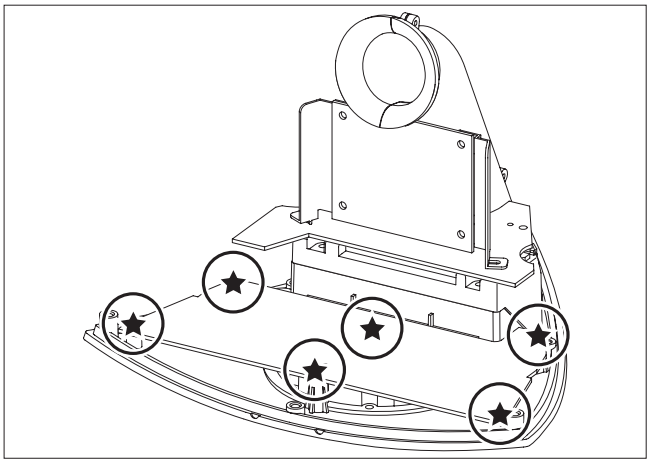
☞ 5.4 Remove cabinet

- Remove plugs

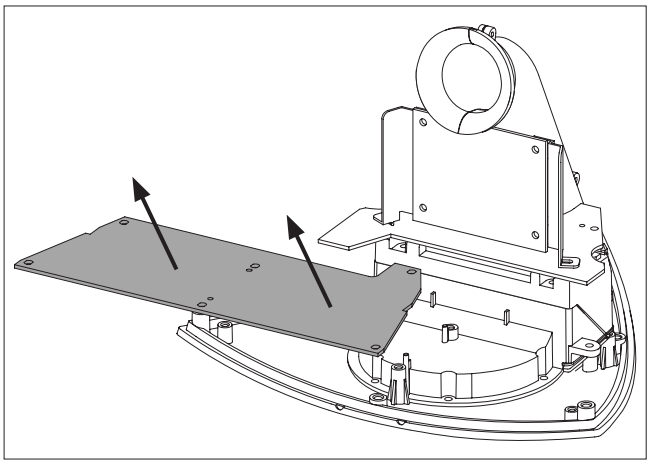




- Remove screws

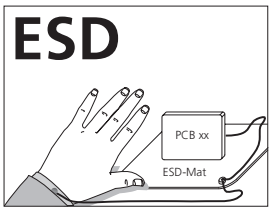


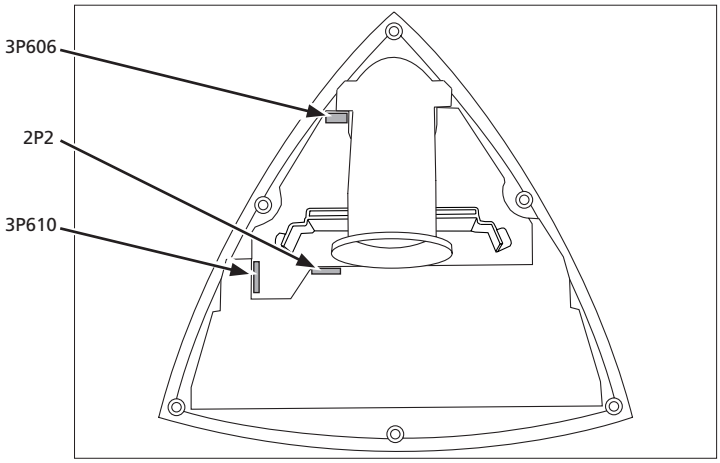
- Pull off PCB2



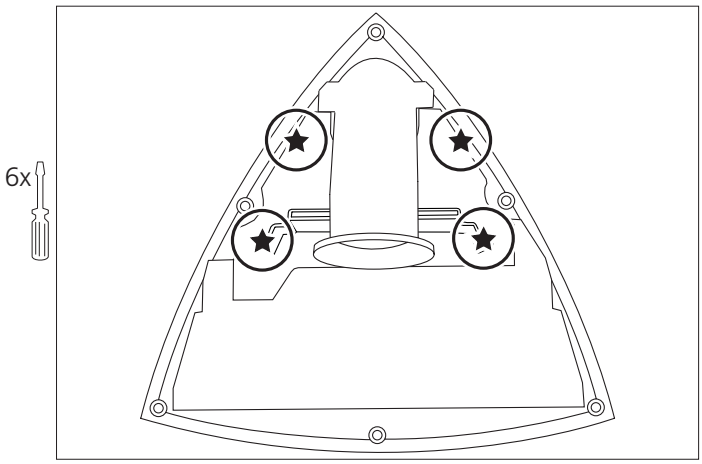
☞ 5.4 Remove cabinet

- Remove plugs

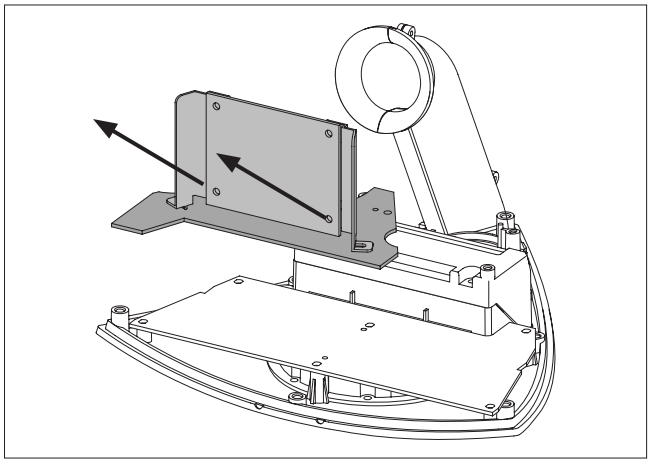




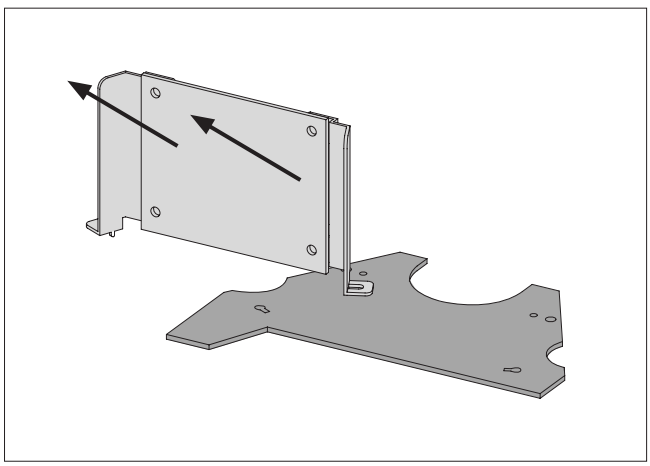
- Remove screws



- Gently pull off PCB1 and PCB3

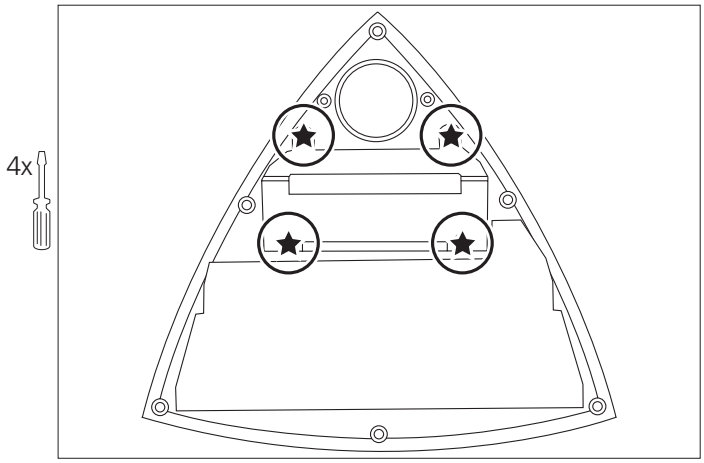


- Pull off PCB1

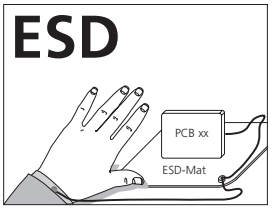


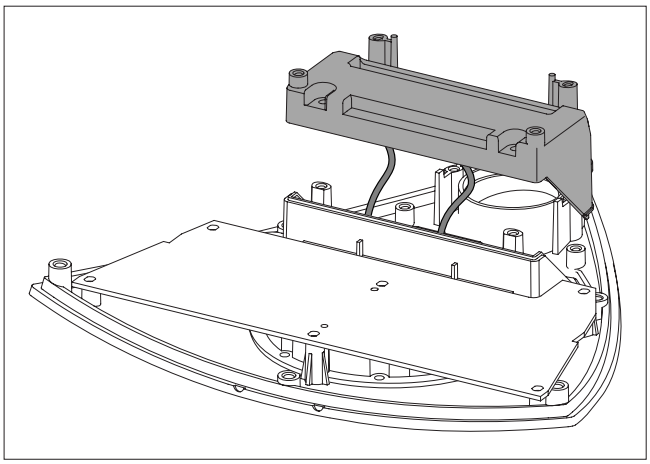
☞ 5.4 Remove cabinet
☞ 5.5 Remove port
☞ 5.8 Remove PCB3, Filter

- Remove screws

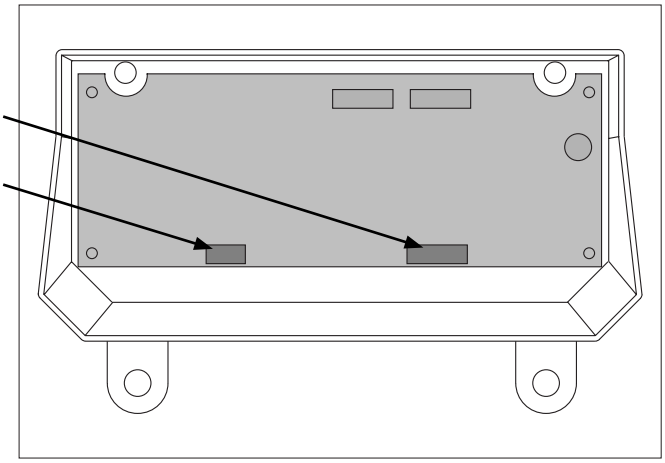


- Pull off as shown
(Be aware of the cables!)

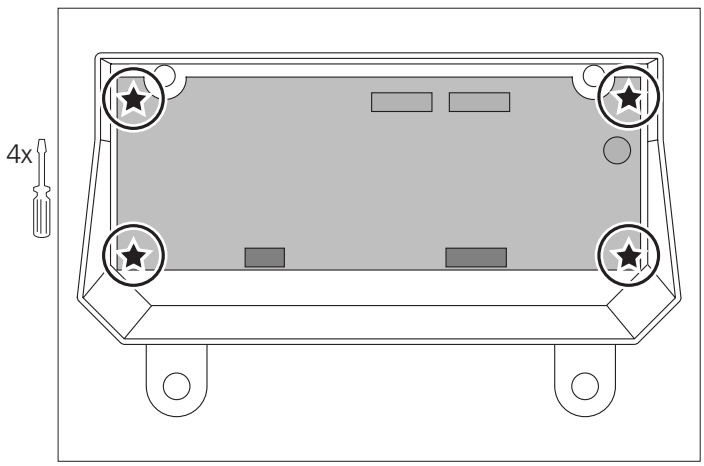




- Remove plugs

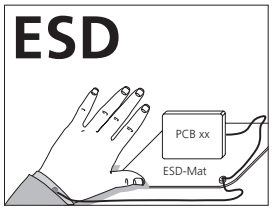


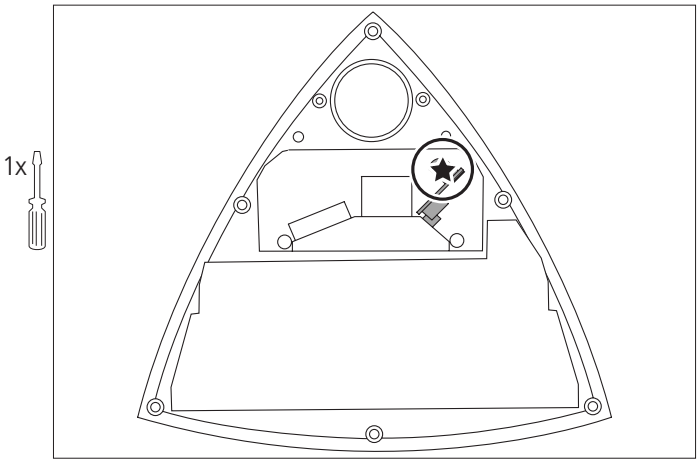
- Remove screws



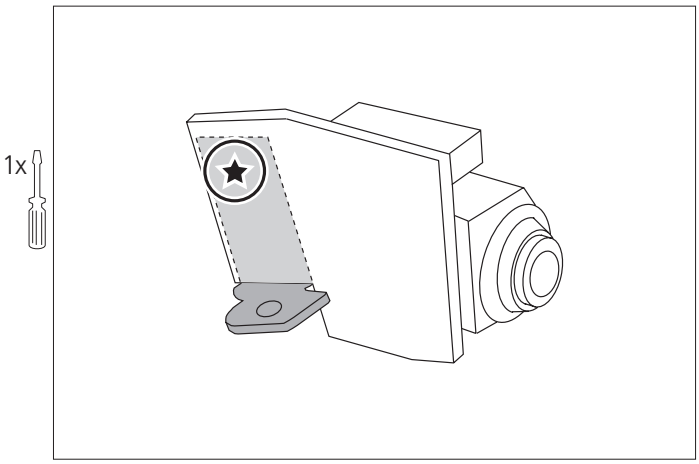
☞ 5.4 Remove cabinet
☞ 5.5 Remove port
☞ 5.8 Remove PCB3, Filter
☞ 5.9 Remove PCB5, Switch

- Remove screw



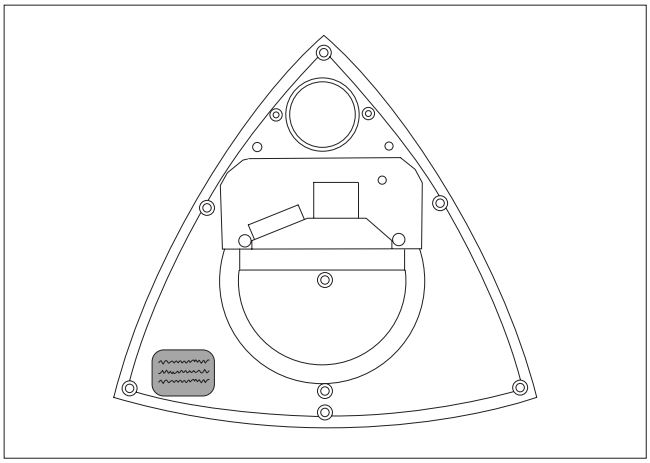


- Remove bracket



- ☞ 5.4 Remove cabinet
- ☞ 5.5 Remove port
- ☞ 5.7 Remove PCB2, SMPS
- ☞ 5.8 Remove PCB3, Filter
- ☞ 5.9 Remove PCB5, Switch
- ☞ 5.10 Remove PCB6, Input

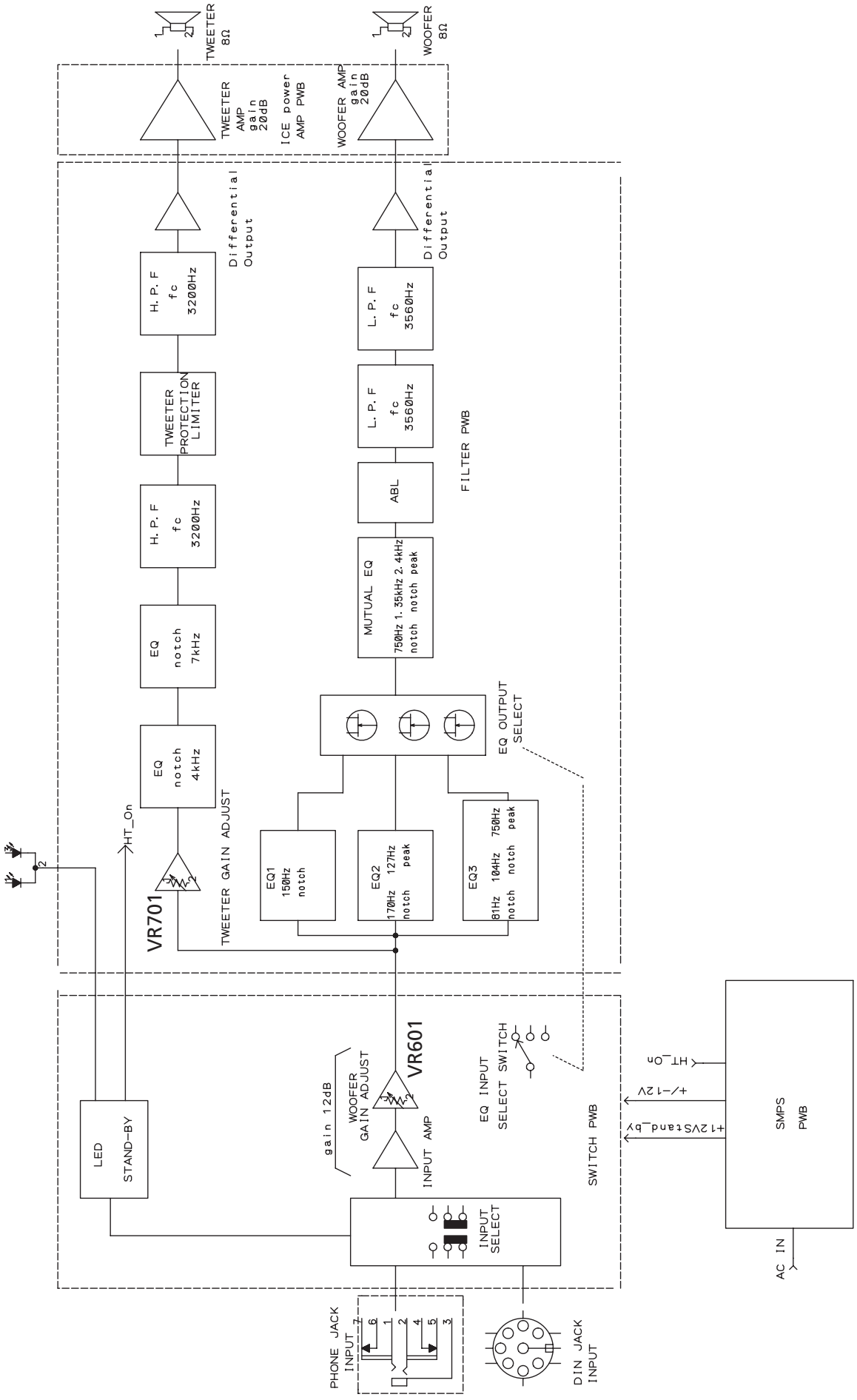
- Remember to transfer label



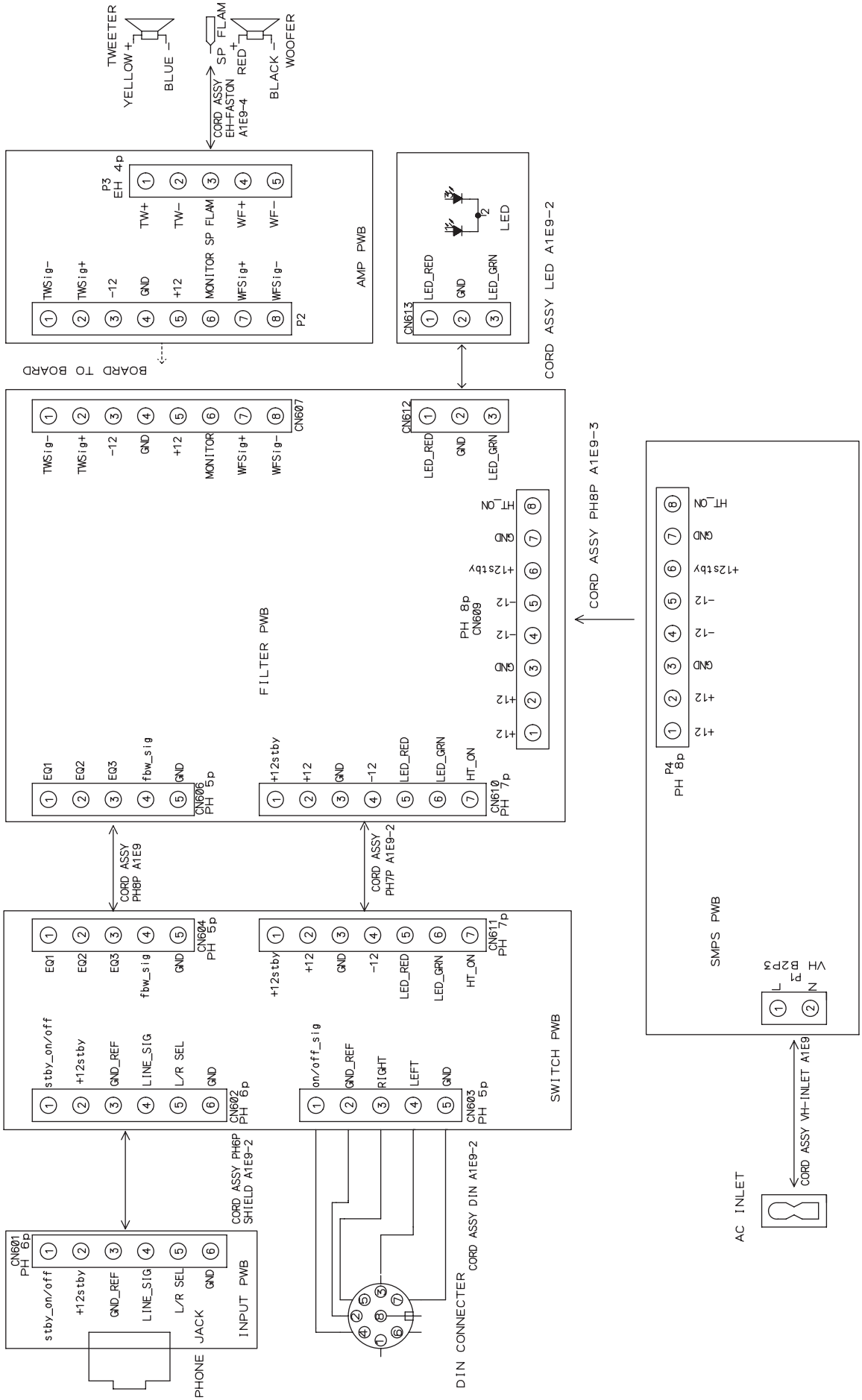
Specification guidelines for service use	BeoLab 4
Type	6650, 6652
Dimensions W x H x D	19.7 x 20.5 x 21.5 cm
Weight	1.7 kg
Cabinet finish	Black, red, blue, dark grey
Power consumption	Typical: 7 W, Stand-by: 0.5 W
Voltage	100-240 V
Power amplifier, bass	35 W, Class D, ICEpower®
Power amplifier, treble	35 W, Class D, ICEpower®
Effective Frequency range	50 – 20,000 Hz
Crossover frequency	3.3 kHz
Cabinet principle	Bass reflex
Net volume, bass	1.55 litres
Magnetically shielded	No
Woofer	101.6 mm (4”), concave diaphragm 6.7Ω ±10%
Tweeter	19 mm (¾”), fabric dome 5.7Ω ±10%
Bass equalization	ABL (Adaptive Bass Linearization)
Input sensitivity (Power Link)	125 mV (88 dB SPL)
Input sensitivity (line)	125 mV (88 dB SPL) - Auto switch on
Switch off time (line)	3 min.
Indicator	LED for on (green) or off (red)
Operation	Free, Wall or Corner position
	Left, Right or LINE, PC switch
Protection	Thermal protection of tweeter and SMPS
Power Link	1 (use semi-balanced PL cable type MK III, or fully mounted PL cable)
Mini-jack (line-in)	Via mini-jack plug 0-1 V (Line - automatic on/off) or 0-2 V (PC - always on) selected by switch
Accessories	
Ceiling bracket, type 2177	1217711 (a pair)
Floor stand, type 2178	1217811 (a pair)
Wall bracket, type 2179	1217911 (a pair)
Cable mini-jack stereo to 2 x mini-jack mono (L and R), 2.5 m	6270250 black
Cable RCA/mini-jack mono, 5 m, black	6270273 (a pair)
Power Link splitter (one male to two female PL plugs)	6270706

Subject to change without notice

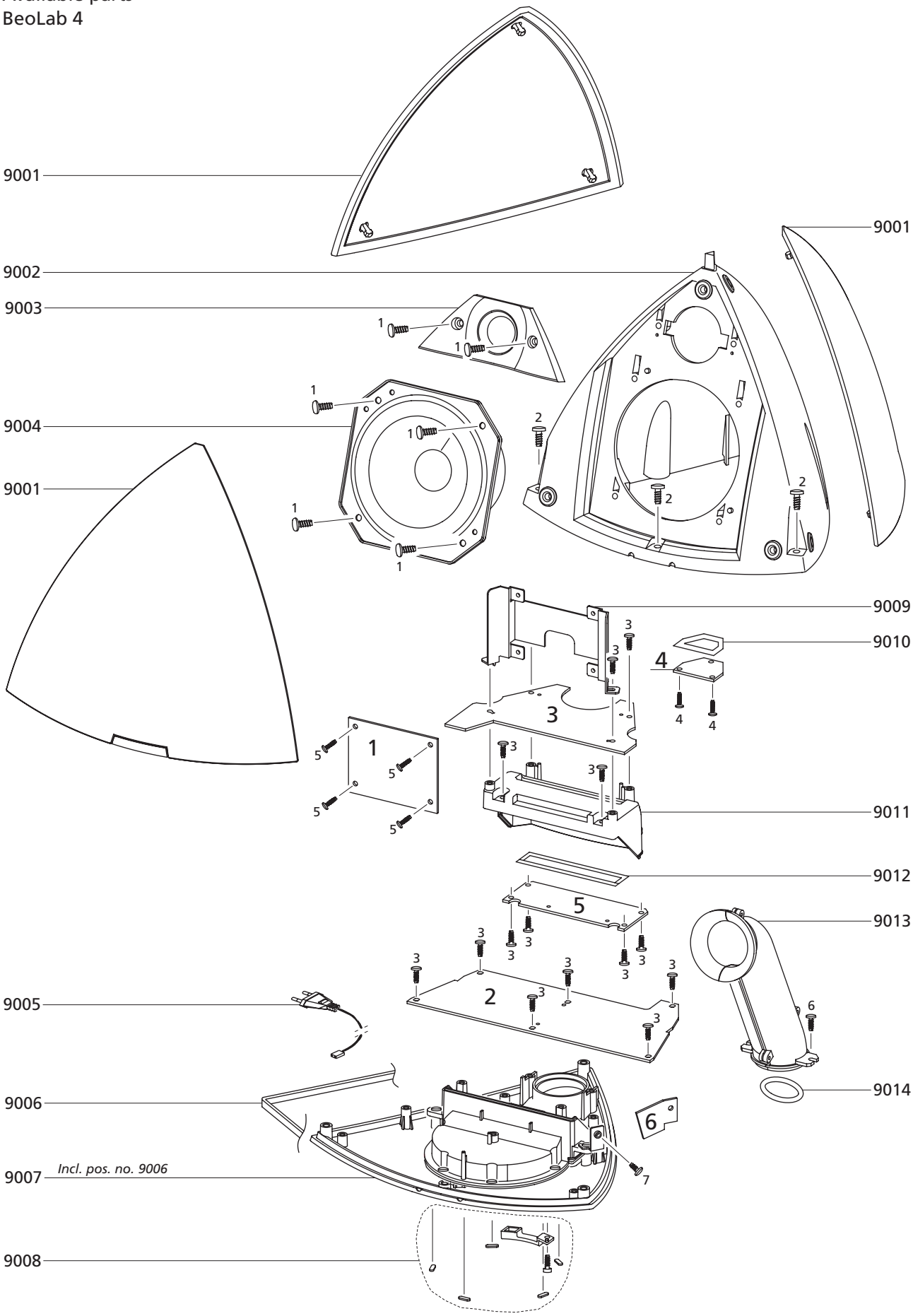
Block diagram



Wiring diagram



Available parts
BeoLab 4



BeoLab 4

9001	1604244	Front cover, red
	1604246	Front cover, black
	1604248	Front cover, blue
	1604249	Front cover, dark grey
9002	3430049	Cabinet
9003	8480048	Tweeter
9004	8480049	Woofer
9005	6100273	Mains cable, EU
	6100329	Mains cable, UK
	6100307	Mains cable, US
	6100332	Mains cable, AUS
	6100386	Mains cable, KOR
	6100331	Mains cable, JP
	6100047	Mains cable, CHN
9006	3340293	Gasket
9007	3454102	Bottom incl. pos. no. 9006
9008	3390066	Bag w/parts
9009	3358148	Heat zink
9010	3340291	Gasket
9011	3131096	Housing
9012	3340290	Gasket
9013	3458134	Port
9014	3340292	Gasket
1Module	8002619	PCB1, Amplifier
2Module	8002620	PCB2, SMPS
3Module	8002621	PCB3, Filter
4Module	8002622	PCB4, LED
5Module	8002623	PCB5, Switch
6Module	8002624	PCB6, Input

Survey of screws etc.

1	2011006	Screw 4 x 10mm
2	2011008	Screw 4 x 10mm
3	2011009	Screw 3 x 8mm
4	2011013	Screw 2.6 x 8mm
5	2011012	Screw 2.6 x 8mm
6	2011011	Screw 3 x 6mm
7	2011010	Screw 3 x 6mm

Wire bundle

	6277995	Wire f/speakers

Parts not shown

	3395297	Back-up suitcase
	3375491	Product cover
	6270250	Cable mini-jack stereo
	6270273	Cable RCA/mini jack
	3375590	Autosol chrom polishing

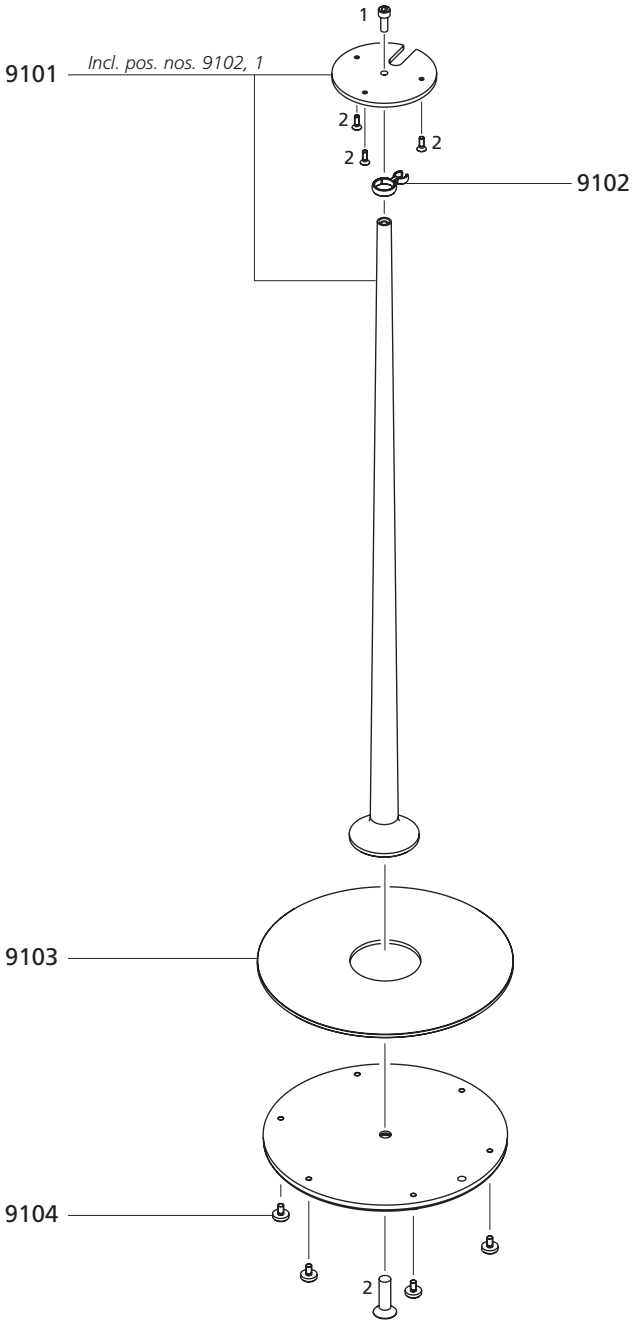
Packing

	3392894	Packing, complete

Available documentation

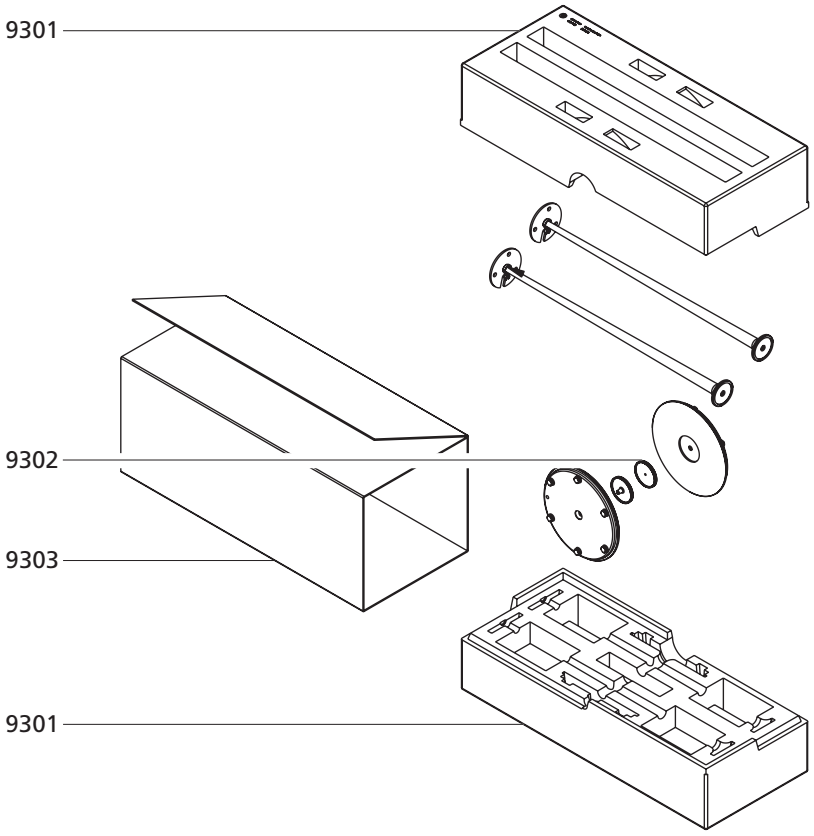
See Retail Ordering System

Floor Stand 2178
1217811



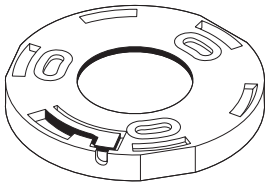
9101	3932011	Tube incl. pos. nos. 9102, 1
9102	2369004	Cable clip
9103	3162238	Cover plate
9104	3103392	Rubber foot
1	2046017	Screw 6 x 16mm
2	3390078	Bag w/parts
	3390082	Cable manager
	3507402	Guide f/2178
	3507662	Guide f/cable manager

Packing – Floor Stand



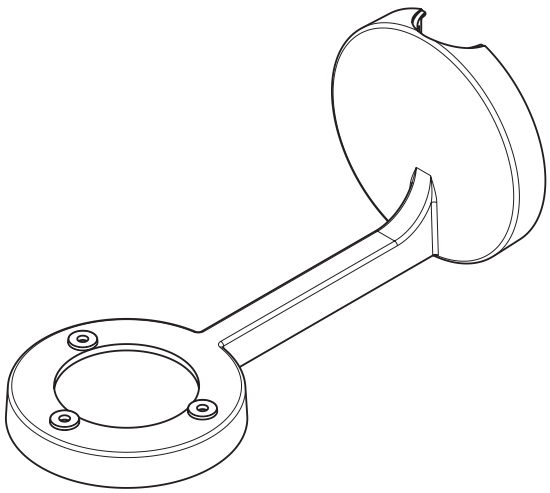
9301	3396330	Foam packing, set
9302	3016012	Guide f/cover plate
9303	3392486	Outer carton

Ceiling bracket 2177
1217711



3507401 Guide

Wall bracket 2179
1217911



3507403 Guide

Bang & Olufsen
DK-7600 Struer
Denmark

Phone +45 96 84 11 22*
Fax +45 97 85 39 11

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